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The Assessment of Pattern of Injuries Due to Road Traffic Accidents

Syeda Sidra Tasneem[1], Rubina Jabeen[1], Ali Waqas[1*], Ammara Mushtaq[2]
[1]Nursing Campus, The Superior College; [2] Nursing College, Allama Iqbal Medical College
[*]E-mail: ali.90waqas@gmail.com
Cell No.: 0092-42-3006500947

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Abstract

The increase of the traffic on the roads of Pakistan has drastically increased the rate of accidents. Such accidents have effect on the life of several families as they have lost their family members loved one and faced the long-life disability. Therefore, the current study examines the pattern of injuries due to RTA among the patients of public hospitals so that the root causes and injury types and mortality rate can be assessed. The descriptive and cross-sectional study design have been utilized in this study. The self-administered questionnaire was adopted, and data was collected from 120 patients affected from RTA. The results reveal that the accident rate is high among the males and injury level is moderate. The poor road condition, lack of awareness and poor implementation of traffic rules are the major causes of road traffic accidents. The study also presents the limitations and recommendation at the end.

Keywords: Road Traffic Accidents, Mortality, Injuries Pattern.

Introduction

Road traffic accidents are the major cause of death and injury among the young adults and adolescents. Many people from all the paces of life suffers from this catastrophe. Road traffic accidents are at the higher rate among the low and middle-income countries. The male female ratio of RTA is 6:1 because males are the bread earners of the family and are involved in the outdoor activities, thus more exposed to the road side crashes than the females. Rapid urbanization, industrialization and increase in population among the developing countries create the load of transport on the roads and ultimately enhances the mortality rate and injuries. Similarly, the study shows that more than one life is lost in every single minute and an injury occurs in every two seconds (Jha, Srinivasa, Roy, & Jagdish, 2003). However, the study describes that road traffic accident may cause the immediate death of or within 30 days of the injury or crash (Joshi et al., 2006).

The world first road traffic fatality was occurred on 31st August, 1869 in Ireland that becomes the reason of a death (Peden et al., 2004). In addition, the study noted that RTA is among the three top causes of the mortality and most vulnerable victims of RTA are of age 5 to 44 years (Peden et al., 2004). According to World Health Organization, 1.2 million deaths and about 50 million injuries occur due to the RTA (WHO, 2004).

However, injuries caused by RTA include fractures of long bones, Head injuries, sprains and lacerations. Poor families suffer a lot from these injuries because they encounter with the financial issues regarding care and treatment, rehabilitation and funereal. In addition, RTA is a major cause of disability (Peden et al., 2004). It also questions the increase in demand of the trained health care professionals in the health care delivery system and puts pressure on the country's economy like (Wong, Chong et al. 2009). In Pakistan, the population growth is extensive and lacking in the

implementation of traffic rules also exists. Thus, current study investigates the pattern of injuries due to RTA in Lahore, Pakistan.

Significance of Study

This study will be beneficial for public and private health care department to understand the prevalence of type of injuries caused by RTA, so that they can take proactive measures to deal with such patients. This study will also bring the benefit for the traffic control department while taking the control measures of traffic to avoid such accidents and creating the awareness programs for public. Likewise, the current study also presents the level of burden and impact of RTA on health care system. So, it will be helpful while managing the catastrophe, timely interventions and rehabilitative services for the victims.

Literature Review

Road traffic crashes occur not only due to the ignorance but also due to over confidence and other's mistake. There exists multiple reason behind RTA and it can be resolved through taking corrective measures at the individual level. Humans, vehicles and environmental factors become the reason of road side traffic accidents and all of these should be categorized epidemiologically (time, place distribution). It is estimated that RTA will be the second most common leading cause of death in the developing countries by 2020 (Murray & Lopez, 1997). WHO has noted the importance of adequate data collection on the RTA injuries (Organization, 1984). However, accurate data regarding RTA also helps while making the better policy about this crisis.

Transport network and roads of the developing countries do not meet the demand of the population however, rapid urbanization and population overgrowth puts a great pressure on the county economy and health. In India RTA causes death of 80,000 people, injuries of 1.2 million people and disability among 300000 people. Majority of the youngsters of more than 4 years of age lost their life due to RTA in India. According to World Health Organization, each year RTAs claim 6,00,000 lives and around thirty times of this number (Over fifteen million) face the injuries. However, RTA is the sixth leading cause of death and injury, disability, socioeconomic loss in India among the young and middle aged individuals (Shaily, Rohit, & Balhara, 2004).

Furthermore, Road traffic incident is the iceberg. Among the victims of RTA, several dies and a lot of them seek emergency care in the hospitals for prolonged period. However, previous literature did not focus well on the RTI crisis in Pakistan. Still the government and other related institution of health and traffic police are unaware regarding several RTA in Pakistan. However, police and traffic control department are maintaining the record now with the collaboration of the hospital's administrators regarding the road side crashes and pattern of injuries.

Road traffic accidents put a great burden on the acute care delivery, short term care, long term care, rehabilitation (Ghaffar, Reddy, & Singhi, 2004). From the previous decade, the alarming issue of mortality and morbidity due to RTA have put greater burden on the health care sector globally. Likewise, the study noted that RTI of two wheeler vehicle is the highest (Patil, Kakade, Durgawale, & Kakade, 2008). Thus, identification of RTA causes and provision of accurate figures of incidents in the developing countries increase the need of the further research on the RTA and its outcomes

Methodology

The descriptive and cross-sectional study design have utilized in the current study. The current study assesses the pattern of injuries caused by road traffic accidents. The data was collected through the record of the emergency departments regarding the patients of RTA from Jinnah

hospital, Lahore. The questionnaire of Singh et al. (2013) regarding RTA was utilized with few modifications. The questionnaire consists of two sections A and B. The section A consists of information regarding the demographics and section B consists of questions regarding Injuries pattern, anatomical site of injury, type of injury, external or internal injury, ED injuries intervention. The data of 120 RTA patients was collected randomly from the record of Jinnah hospital Lahore. Road traffic accidents' cases data was collected from outdoor, indoor patients, emergency departments especially orthopedic emergency of Jinnah hospital. The frequency distribution test and chi square test will be applied through SPSS 21 to analyze the data.

Inclusion criteria

All the RTA patients admitted in the emergency and other related departments of Jinnah hospital who gave consent to participate in the study.

Exclusion criteria

The following cases were excluded from the study:

Cases discharged from hospital, brought dead cases, cases admitted in I.C.U, cases who are not willing to participate in the study, cases dying after admission before treatment.

Results

Demographics

This is an assessment based descriptive cross-sectional studies on pattern of injuries due to RTA, that involves sample size n=120 patients.

Gender

Table 1. The frequency distribution of gender of the patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	84	70.0	70.0	70.0
	female	36	30.0	30.0	100.0
	Total	120	100.0	100.0	

Table no.1 describes the frequency distribution of gender of the patients either male or females are more prone to accidents. The results in table 1 depicts that 84(70%) of the patients were males and 36(30%) were females, so males were more prone to RTA.

Marital status

Table 2. The frequency distribution of marital status of victims

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	married	65	54.2	54.2	54.2
	Single	55	45.8	45.8	100.0
	Total	120	100.0	100.0	

Table no.2 describes the frequency distribution of marital status of victims. The results reveal that out of 120 patients 65(54.2%) were married and 55(45.85%) were single.

Age group

Table 3. The frequencies of age group of the patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	39	32.5	32.5	32.5
	25-35	34	28.3	28.3	60.8
	35-50	27	22.5	22.5	83.3
	above50	20	16.7	16.7	100.0
	Total	120	100.0	100.0	

Table no.3 shows the frequencies of age group of the patients. Out of 120 patients, 39(32.5%) of the patients were from the age group of 18-25 years, 34(28.3%) of the patients were from age group of 25-35 years, 27(22.7%) of the patients were from age group of 35-50 years and 20(16.7%) patients were above 50 years.

Time of accident

Table 4.The time of the accident of the patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	day time	73	60.8	60.8	60.8
	night time	47	39.2	39.2	100.0
	Total	120	100.0	100.0	

Table no. 4 depicts the time of the accident of the patients. The results in table 4 show that 73(60.8%) of accidents occur in day time and 47(39.2%) of the accidents occur at the night time.

Organization

Table 5. Patients' belonging to the organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Jinnah hospital Lahore	120	100.0	100.0	100.0

Table no. 5 shows the results that all the patient of the current study was from Jinnah hospital Lahore, Pakistan.

Question no.1: Any pre-hospital care was given to the victim?

Table 6. How many patients receive the pre-hospital care at the site of incident

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	54	45.0	45.0	45.0
	No	59	49.2	49.2	94.2
	not known	7	5.8	5.8	100.0
	Total	120	100.0	100.0	

Table no.6 describes that how many patients receive the pre-hospital care at the site of incident. Table 6 shows that 54(45%) patients received the prehospital care and 59(49.2%) of the patients did not receive any pre-hospital care and 7(5.8%) patient's information regarding the pre-hospital care was unknown.

Question no.2: Where was the first aid was given to the patient?

Table 7. Details that the first aid was given to the patient or not

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	at accident site	21	17.5	17.5	17.5
	nearby clinic	16	13.3	13.3	30.8
	nearby governmental hospital	77	64.2	64.2	95.0
	Other	6	5.0	5.0	100.0
	Total	120	100.0	100.0	

Table no.7 shows the details that the first aid was given to the patient or not. Table no.7 shows that out of 120 patients, 21(17.5%) patients received the first aid at the accident site, 16(13.3%) patients received the first aid nearby clinic and 77(64.2%) patients received the first aid at the hospital. In addition, 6(5.0%) patients received the first aid at the other type of location.

Question no. 3: Who gave the first aid?

Table 9. Who have provided the first aid to the patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Doctor	87	72.5	72.5	72.5
	Nurse	15	12.5	12.5	85.0
	Police	2	1.7	1.7	86.7
	Public	16	13.3	13.3	100.0
	Total	120	100.0	100.0	

Table no.9 describes that who have provided the first aid to the patients. Table 9 depicts that 87(2.5%) patients received the first aid by the doctors, 15(12.5%) patients received the first aid from the nurses, 2(1.7%) patients received the first aid from the police and 16(13.3%) patients received first aid from the public at the spot.

Question no. 4: Did you lose your consciousness when confronting with the accident?

Table 10. The level of consciousness either the patients loose or not at the time of accident

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	57	47.5	47.5	47.5
	No	57	47.5	47.5	95.0
	don't know	5	4.2	4.2	99.2
	N/A	1	.8	.8	100.0
	Total	120	100.0	100.0	

Table no.10 shows the level of consciousness either the patients loose or not at the time of accident. Table no. 10 reveal that 57(47.5%) patients lost the consciousness, 57(47.5%) patients did not lose their consciousness, 5(4.2%) patients did not know either they lost the consciousness or not and 1(.8%) patient's status was not known.

Question no. 5: You were using helmet or seat belt while driving?

Table 11. How many patients were using seat belts and helmets while driving car or bike

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	27	22.5	22.5	22.5
	No	61	50.8	50.8	73.3
	don't know	2	1.7	1.7	75.0
	N/A	30	25.0	25.0	100.0
	Total	120	100.0	100.0	

Table no.11 depicts how many patients were using seat belts and helmets while driving car or bike respectively. Table 11 show that 27(22.5%) patients were using seat belts and helmet while driving, 61(50.8%) patients were not using seat belts and helmets, 2(1.7%) patients didn't know about it and 30(25%) patient don't have helmets or not working seat belts.

Question no.6: Taking alcohol or hypnotic drugs?

Table 12. The patient's habit of drugs usage

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	7	5.8	5.8	5.8
	No	99	82.5	82.5	88.3
	don't know	5	4.2	4.2	92.5
	N/A	9	7.5	7.5	100.0
	Total	120	100.0	100.0	

Table no.12 shows the patient's habit of drugs usage. Results in table 12 show that 7(5.8%) patients were taking alcohol and other drugs in routine, 99(82.5%) patients were not addict of drugs, 5(4.2%) patients did not know about the drugs and 9(7.5%) patients data of drugs usage was not available.

Question no.7: Usage of the Vehicle type?

Table 13. The distribution of patients' usage of vehicle type

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	motorcyclist	75	62.5	62.5	62.5
	Truck	15	12.5	12.5	75.0
	Car	14	11.7	11.7	86.7
	pedestrian	16	13.3	13.3	100.0
	Total	120	100.0	100.0	

Table no.13 shows the distribution of patients' usage of vehicle type. Table 13 reveals that 75(62.5%) patients were motorcyclist, 15(12.5%) patients were truck drivers, 14(11.7%) patients were on car and 16(13.3%) patients were pedestrian.

Question no.8: What was the road condition when the injury has occurred to you?

Table 14. The condition of roads

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Plain	69	57.5	57.5	57.5
	Slippery	19	15.8	15.8	73.3
	poor condition	29	24.2	24.2	97.5
	Dust	3	2.5	2.5	100.0
	Total	120	100.0	100.0	

Table no.14 shows the condition of roads either slippery, having dust on it, plain or poor condition while the accident. Table 14 show the results that 69(57.5%) patients met the accidents on the plain road, 19(15.8%) patients met the accidents while slippery road, 29(24.2%) patients met the accident while the road was on poor condition and 3(2.5%) patients met due to the dust on the road.

Question no.9: Death of anyone when the incident of injury has occurred while travelling:

Table-15. The number of deaths of the patients due to RTA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	18	15.0	15.0	15.0
	No	90	75.0	75.0	90.0
	don't know	11	9.2	9.2	99.2
	N/A	1	.8	.8	100.0
	Total	120	100.0	100.0	

Table no.15 describes the number of deaths of the patients due to RTA. Table 15 reveals that 18(15%) patients died due to accident, 90(75%) patients did not die due to the accident, 11(9.2%) patients were neutral and 1(.8%) patient's data was not available.

Question no.10: Are you moving/travelling in wrong direction?

Table 16. The frequency distribution of the patient's drive to the wrong direction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	66	55.0	55.0	55.0
	No	30	25.0	25.0	80.0
	don't know	22	18.3	18.3	98.3
	N/A	2	1.7	1.7	100.0
	Total	120	100.0	100.0	

Table no. 16 shows the frequency distribution of the patient's drive to the wrong direction. Table 16 shows that 66(55%) patients were moving in the wrong the direction, 30(25%) patients were not driving in the wrong direction, 22(18.3%) patients were neutral about the question and 2(1.7%) patients' data was not available.

Pattern of injuries

Question no. 11: What is the nature of injury from which you are suffering?

Table 17. The nature of the injury of the patients

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Fracture	65	54.2	54.2	54.2
	penetrating trauma	12	10.0	10.0	64.2
	Hematoma	15	12.5	12.5	76.7
	multiple cuts open or closed	28	23.3	23.3	100.0
	Total	120	100.0	100.0	

Table 17 shows the nature of the injury of the patients. Table 17 show the results that 65(54.2%) patients were suffered from fracture, 12(10.0%) patients were suffered from penetrating trauma, 15(12.5%) patients were suffered from hematoma and 28(23.3%) patients were suffered from multiple cuts.

Question no.12: What is the Severity of injury?

Table 18. The frequencies of the severity of injury among RTA victims

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	minor (0-7)	4	3.3	3.3	3.3
	moderate (8-18)	86	71.7	71.7	75.0
	severe>18	30	25.0	25.0	100.0
	Total	120	100.0	100.0	

Table no.18 shows the frequencies of the severity of injury among RTA victims. Table 18 show the results that 4(3.3%) patients suffered from minor, 86(71.7%) patients suffered from the moderate level injury and 30(25.0%) patients were suffered from the severe injuries.

Question no. 13: Does the patients have sustained any visceral injury?

Table 19. The frequency distribution of the visceral injury

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	pneumothorax	21	17.5	17.5	17.5
	liver laceration	10	8.3	8.3	25.8
	splenic injury	4	3.3	3.3	29.2
	hemoperitoneum	11	9.2	9.2	38.3
	no	74	61.7	61.7	100.0
	Total	120	100.0	100.0	

Table no.19 shows that the frequency distribution of the visceral injury. The results in table 19 show that 21(17.5%) patients were facing the pneumothorax, 10(8.3%) patients were suffering from the liver laceration, 4(3.3%) patients were facing the hemoperitoneum and 74(61.7%) patients were facing not any visceral injury.

Question no.14: What is the site of injury of victim?

Table 20. The frequency distribution of affected body part from the RTA

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	upper extremity	26	21.7	21.7	21.7
	lower extremity	54	45.0	45.0	66.7
	head	22	18.3	18.3	85.0
	neck	18	15.0	15.0	100.0
	Total	120	100.0	100.0	

Table no.20 shows the frequency distribution of affected body part from the RTA. Table 19 reveal that 26(21.7%) patients were suffering from the upper extremity, 54(45.0%) patients were facing the lower extremity, 22(18.3%) patients were suffered from the head injury and 18(15.0%) patients were suffered from the neck injury.

Question no.15: Does the patient receiving adequate care/Rehabilitation regarding injury?

Table 21 The patient's response regarding the treatment in the hospital

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	100	83.3	83.3	83.3
	no	11	9.2	9.2	92.5
	don't know	7	5.8	5.8	98.3
	N/A	2	1.7	1.7	100.0
	Total	120	100.0	100.0	

Table no.21 depicts the patient's response regarding the treatment in the hospital. Table 20 shows that 100(83.3%) patients received the adequate treatment, 11(9.2%) patients responded as negative.

Question no. 16: GLASS GOW COMA Scale of the victim

Table 22. GCS of the victim

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3(worst)	4	3.3	3.3	3.3
	<8(moderate)	34	28.3	28.3	31.7
	15(best)	82	68.3	68.3	100.0
	Total	120	100.0	100.0	

Table no.22 reveals that the 4(3.3%) patients' GCS was worst and 34(28.3%) patients' GCS was of moderate level and 82(68.3%) patients' GCS was the best.

Discussion

The current study is of descriptive and cross-sectional design. This study assesses the pattern of injuries among the patients of RTA of Jinnah hospital Lahore, Pakistan. The results of the current study reveal that the higher rate of accidents among the age group of 18-25 years which is about 32.5% of the total patients of Jinnah hospital, Lahore. Among this age group, the youngsters are the school, college and university boys who are interested in the tricky acts on the roads. There are wide variations in the characteristics of motor vehicle crashes between countries and regions of the developing world and in Pakistan this rate is higher. Pedestrians are most vulnerable to injury and death due to RTA. This may be due to several factors, including lack of pedestrian facilities, poor knowledge and practices of road safety measures, uncourteous behavior of the motorists, high speed driving and lack of the vehicle ownership. The high proportions of passenger fatalities appear to be associated with extensive use of public transport, types and condition of such vehicles, and the driving skill of their operators. Likewise, table 13 shows that accident rates are higher among motorcyclists (62.5%). Similarly, RTA are more common in the males than females because males have greater exposure to the outdoor activities. Table 1 reveals that male are more prone to the RTA as the results how that 70% patients were males. Furthermore, this study results depict that accidents occur mostly (63%) at the day time and majority (50%) of the patients were not using helmets and seat belts. Table 15 show that deaths are lower at the incident site. However, table 12 show that RTA due to drug addiction is quite low (5.8%). In addition, fractures were the most (54.2%) common injury due to RTA and level of injury was also at the moderate level (71.7%). Furthermore, most (45%) of the victims of RTA suffered from the lower extremity. However, poor road condition and wrong driving style are the major cause of RTA.

Conclusion

This study analyzes the pattern of injuries caused by the RTA among the patients of the Jinnah hospital Lahore, Pakistan. This study promotes safety measures and education about the traffic rules. However, developing countries like Pakistan are more at the risk of RTA than the developed countries due to several reasons. Drivers and passengers should be guided regarding the usage of helmets and seat belts, driving licenses, security check posts, speed checker, proper lightening on the roads and proper management of vehicles. Furthermore, government should arrange training programs related to the first aid at the incident spot and at the emergency setting. Drivers should avoid drugs and alcohol consumption while driving.

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